

## 05-270 Replacing valve stem seals

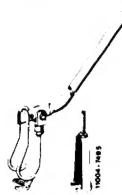
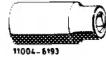
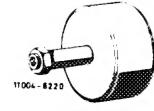
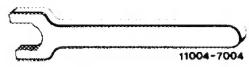
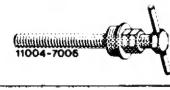
Valve clearance	Cold engine (ca. 20 °C)	Warm engine (60 °C ± 15 °C)
Intake	0.10 <sup>1</sup> )	0.15 <sup>1</sup> )
Exhaust	0.25	0.30

<sup>1</sup>) 0.05 mm more for consistent outside temperatures below -20 °C.

Tightening torques	Nm
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Cylinder head cover bolts and capped nuts	5
Cylinder head bolts M 12 x 1.5	100
Bolts M 8 for camshaft housing to cylinder head and crankcase	25
Necked-down screws for camshaft sprockets	80
Ball locating ring in chain tensioner	25

### Special tools

Depressor for valve spring		110 589 04 61 00
Socket 27 mm, 1/2" square for rotating engine		001 589 65 09 00
Impact extractor for bearing pin (basic unit)		116 589 20 33 00
M 6 x 50 bolt for impact extractor		116 589 01 34 00
Camshaft holding wrench		116 589 01 01 00
Rigid chain tensioner		110 589 03 31 00
Wrench socket 10 mm, 1/2" square, 140 mm long		000 589 05 07 00
Rail to hold down valve springs		110 589 00 62 00

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Chain tensioner holder



110 589 02 31 00

Assembly mandrel for valve stem seals intake and exhaust 9 mm dia.



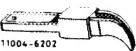
116 589 00 43 00

Installation mandrel for exhaust valve stem seals 11 mm dia.



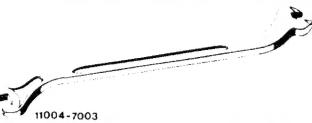
116 589 01 43 00

Magnetic lifter for valve collets



116 589 06 63 00

Valve adjusting wrench 17 mm



110 589 01 01 00

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#### Note

Remove camshaft housing with camshafts (01-470) and pertinent valve springs (05-250) to replace valve stem seals.

Valve stem seals are supplied in a repair kit with assembly sleeves.

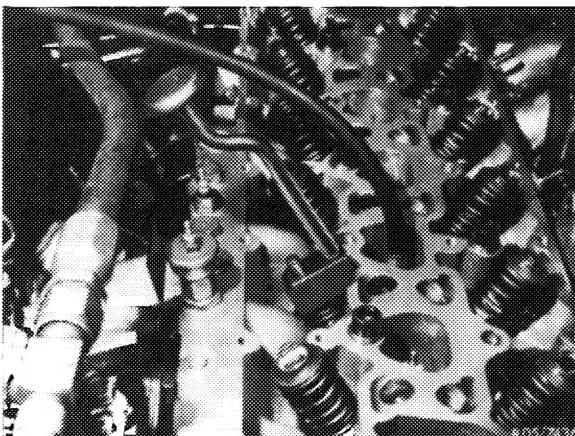
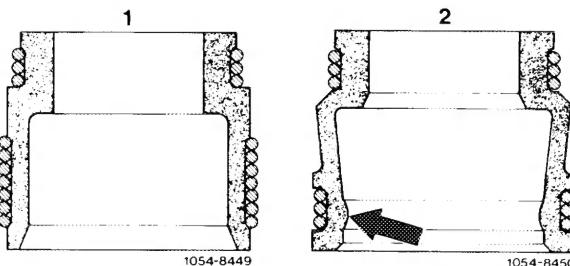
The exhaust valve stem seal with 9 mm ID for engines starting April 1978 (emission-controlled engines starting model year 1980) has a holding bead inside (arrow). Do not mix up with intake valve stem seal without holding bead.

Valve guides, which are worn at the groove for the valve stem seal, must be replaced.

#### Valve stem seals

Repair set 123 586 03 05 (up to April 1978 or up to model year 1980 (USA)).

Repair set 110 586 03 05 (starting April 1978 or starting model year 1980 (USA)).



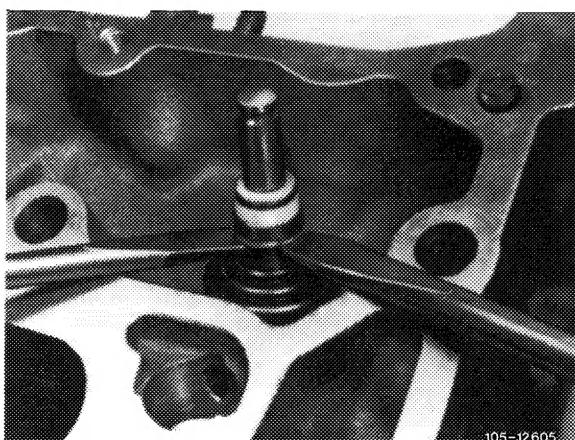
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#### Replacing

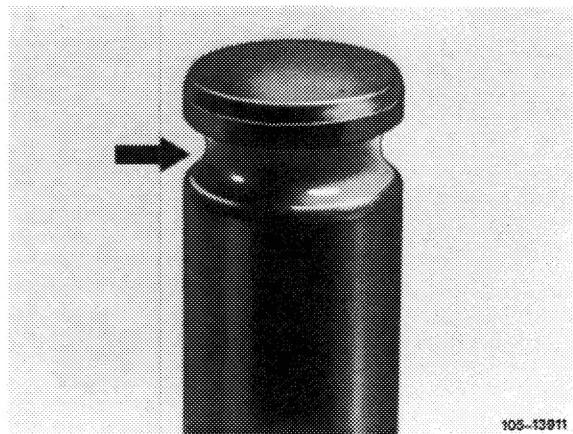
1 Press off valve stem seals.

#### Attention!

Don't damage valve stem and valve guide.



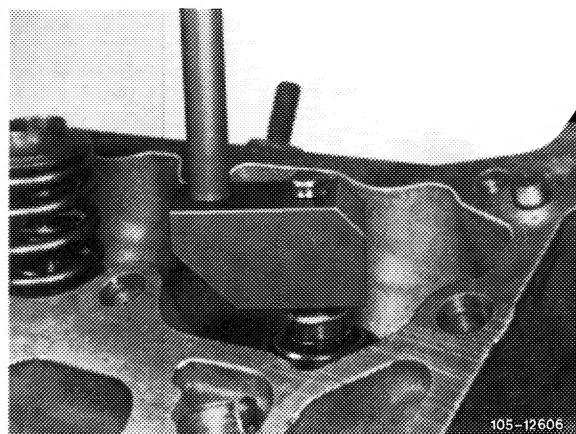
- 2 Deburr valve stem at groove (arrow).
- 3 Replace dented valve cones and spring retainers.
- 4 Check Rotocap and replace if necessary.



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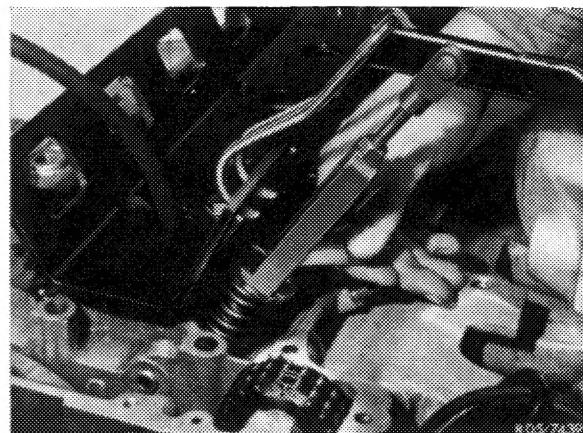
- 5 Lubricate valve stem seals and install with installation mandrel.

Use assembly sleeve on intake valve.



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- 6 Install valve springs (05-250) and camshaft housing (01-470).



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